



```

mouse Mgat1      MLKKQQTAGLVLWGAILFVGVNALLLLFFWTRpapgrlpsdsalgdgdpASL
rat Mgat1        MLKKQSAGLVLWGAILFVGVNALLLLFFWTRPAPGRLPSSDALSALGDDPASL
human MGAT1      MLKKQSAGLVLWGAILFVAVNALLLLFFWTRPAPGRPPSVSALDGDGPASL
rabbit MGAT1     MLKKQSAGLVLWGAILFVAVNALLLLFFWTRPVPSRLPSDNALDDDPASL
Xenopus gntI     MPRK--VSVAAWGAALFISWNAILLLLYLSMR-----SRGTDHSDL
fly Mgat1        MTRTRKVLVLVIGFLVTWYATYTYLLLRQTGIHSTRHQSLQAYKLNSQARDA
Caenorhabditis_gly-13 --MHAVTKFIFIFLVFLWTLTYVNDITNRTNTDN-----IDDL
Caenorhabditis_gly-14 --MHISSKTIFIPVLIIYFSWNFYIQNGFTNKAIVKEKL-----RLLKEM
Arabidopsis_CGL1 --MARISCDFRFLLIIPAAFMTYIQMRLPQTQSQYADRLS--SAIESENHC
:                :                :
mouse Mgat1      TREVIHLAEDAAEALERQGRGLLQIQIKEHYALWRQRW-----R
rat Mgat1        TREVIHLAEDAAEALERQGRGLLQIQIKEHYSLWRQRW-----R
human MGAT1      TREVIRLAQDAEVELERQGRGLLQIQIGD--ALSSQRG
rabbit MGAT1     TREVIRLAQDAEVELERQGRGLLQIQIREHALLWSQRW-----K
Xenopus gntI     THAQVQLAEAAEAELEKQKGLLQIQIHYSGLLNQQQPSSSHVRLAPLMPKI
fly Mgat1        NMQSSHHLAKN-VFEFVLKLYLEKQPSPVASTPQISIIIAEISAELEPEQHV
Caenorhabditis_gly-13 LESANRLERLLKFEAKKIAALAEVDHKKIRANRKGKH-----
Caenorhabditis_gly-14 DEAGSRLEKLLKVEKEHMERLSETMN--RATR-----
Arabidopsis_CGL1 TSQMRSLIDEVSIKQSRIVALEDMKNRQDEEVLQVK-----DL
*                :                *
mouse Mgat1      VptvappawprvpvtpspvqpiLVLIACDRS-TVRRCLDKLLHYR-PSAE
rat Mgat1        VPTVAPPAPWRPVPGTSPFAVPIPLVIACDRS-TVRRCLDKLLHYR-PSAE
human MGAT1      VPTAAPPAQPRVPVTPPAVPIPLVIACDRS-TVRRCLDKLLHYR-PSAE
rabbit MGAT1     VPTAAPPAQPHVPVTPPPAVPIPLVIACDRS-TVRRCLDKLLHYR-PSAE
Xenopus gntI     NLNVSSPFPSPVSGSGLPLVLVILVIVACDRP-SVRRCLDSLLKYR-PSAE
fly Mgat1        AKSATARIPTKTYLANGEVPVEVVVFACNRV-SVKKCIDNLVQYR-PSVE
Caenorhabditis_gly-13 ---VIMEBMSVQDLKQWKDPIPLVLFVSCNRAMAVRDHVEKLIMYR-PSQE
Caenorhabditis_gly-14 ---LRITPMNSNPNWPHPIPTVIVFSCNRPDVRAHVEKLIMYR-PSAQ
Arabidopsis_CGL1 IQTFEKKGIAKLTQGGQMPVAAVVMACSRADYLERTVKSVLTYQTPVAS
:.*.*.*         :.  :.:.*.*
mouse Mgat1      RFPIIVSQDCGHEETAQVIASYGTAUTHIRQP--DLSNIAVQPDHRKFQG
rat Mgat1        HFPIIVSQDCGHEETAQVIASYGTAUTHIRQP--DLSNIAVQPDHRKFQG
human MGAT1      LFPIIVSQDCGHEETAQVIASYGSAUTHIRQP--DLSNIAVPDHRKFQG
rabbit MGAT1     LFPIIVSQDCGHEETAQVIASYGSAUTHIRQP--DLSNIAVQPDHRKFQG
Xenopus gntI     KFPIIVSQDCGHEETGKVIDSYGDAUTHIKQP--DLSEVAVPPEHRKFQG
fly Mgat1        QFPIIVSQDCGDEPTKEAILSYGKQVLTIEQP--DLSDDITVLPKPKKFKG
Caenorhabditis_gly-13 KFPIIVTQDCDENNVNKKPKGDKVEYIKHLAGDKANITIPPSHRQVTA
Caenorhabditis_gly-14 QFPITVSQDCDNESVKKEVEKFGNSVNYVKHPGESVKIIBITNLQKPKP
Arabidopsis_CGL1 KYFLFISQDGSQDAVKSKLSY-NQLTYMQHLD---FEPVVTERPGLTA
:.*.*.*         :.  :.:.*.*
mouse Mgat1      YYKIARHYRWALGQIFNKFK-FPAAVVVEDDLEVAPDFFEYFQATYPLLR
rat Mgat1        YYKIARHYRWALGQIFNKFK-FPAAVVVEDDLEVAPDFFEYFQATYPLLK
human MGAT1      YYKIARHYRWALGQVFRQFR-FPAAVVVEDDLEVAPDFFEYFRATYPLLK
rabbit MGAT1     YYKIARHYRWALGQIFNFNF-YPAAVVVEDDLEVAPDFFEYFQATYPLLK
Xenopus gntI     YYKISRHYRWALNQIFKSMG-YKAAVVVEDDLEVAPDFFEYFQATPLPLQ
fly Mgat1        YYKIARHYRWALNTTF-AVG-FEVIIVEDDLEVAPDFFEYFLGTHKLLK
Caenorhabditis_gly-13 YYKIARHYKLALNHVVDKG-YSSVIITEDDLIDSPDFFSYFSSTRYLLK
Caenorhabditis_gly-14 YYYSIRHYKLALNHIFSNNSNYVITTEDDLIDAPDFFSYFSSTRYLLK
Arabidopsis_CGL1 YYKIARHYKVALDQLFYKHK-FSRVILLEDMDNEIAPDFFDYFNAASTMD
**.*.*.*         :.  :.:.*.*
mouse Mgat1      TDPSLWCVSAWNDNGKEQMVDSKPELLYRTDFFPGLGWLLADLWAELE
rat Mgat1        ADPSLWCVSAWNDNGKEQMVDSKPELLYRTDFFPGLGWLLADLWAELE
human MGAT1      ADPSLWCVSAWNDNGKEQMVDSRPELLYRTDFFPGLGWLLADLWAELE
rabbit MGAT1     ADPSLWCVSAWNDNGKEQMVDSKPELLYRTDFFPGLGWLLADLWAELE
Xenopus gntI     KDRMLWCVSAWNDNGKEALIDPGGTSLLYRSDFPGLGWLLADLWAELE
fly Mgat1        QDPSLWCVSAWNDNGKAADVDAQPELLYRTDFFPGLGWMLTKDLWAELE
Caenorhabditis_gly-13 NDEKLWCVTAWNDNGKQENIDMTAASLTLYRSDFPAGLGWMMSSKTHWELE
Caenorhabditis_gly-14 QDPSLWCVTAWNDNGKPENIDLSKSNATLYRSDFPAGLGWMMTRKTWEELE
Arabidopsis_CGL1 RDKTIMAASSWNDNGKQKFVH--DPYALYRSDFPGLGWMLKRSTWDELS
*                :                *
mouse Mgat1      PKWPKAFWDDWMRRPEQRKGRACIRPEISRT--MTFGRKGVSHGQFFDQH
rat Mgat1        PKWPKAFWDDWMRRPEQRKGRACIRPEISRT--MTFGRKGVSHGQFFDQH
human MGAT1      PKWPKAFWDDWMRRPEQRKGRACIRPEISRT--MTFGRKGVSHGQFFDQH
rabbit MGAT1     PKWPKAFWDDWMRRPEQRKGRACIRPEISRT--MTFGRKGVSHGQFFDQH
Xenopus gntI     PKWPSAFWDDWVRPEQRLDRACVRPELSRT--RTFGRKGVSCQGQFFDQH
fly Mgat1        VWKPKSFWDDWIRHPAQKDRVCIRPEISRT--RTFGKIGVSNGLFFEDKY
Caenorhabditis_gly-13 PIWPFVGFWDDWMRRDPARKRDQCIRPEISRTGMSYKGEKAGSKGQFFFSKH
Caenorhabditis_gly-14 PIWPNFGWDDWMREPVQRKQRCIRPEISRTGMMKYKGEKSGKQFFFSKH
Arabidopsis_CGL1 PKWPKAYWDDWLRLKENHKGQFIRPEVCT--YNFGEHGSSLGQFFFSQY
*                :                *

```

mouse_Mgat1	LKFIKLNQQFVFPFTQLDLSYLQEQEAYDR-DFLAQVYGAPQLQVEKVRTND
rat_Mgat1	LKFIKLNQQFVFPFTQLDLSYLQREAYDR-DFLAQVYGAPQLQVEKVRTND
human_MGAT1	LKFIKLNQQFVHFTQLDLSYLQREAYDR-DFLARVYGAPQLQVEKVRTND
rabbit_MGAT1	LKFIKLNQQFVFPFTQLDLSYLQEQEAYDR-DFLARVYGAPQLQVEKVRTND
Xenopus_gntI	LRFIKLNQDLVRFTKMDLSYLLKDTYDP-WFLEQVYGAPKARAEVLHGQ
fly_Mgat1	LKHIKLSEDFVQFTKINMSYLLKDNVDN-TFLRRVYTYPIVITYDELRRNL
Caenorhabditis_gly-13	LAKIKVNDKYINFGKIDLDYLLPANFAKKTNLEVMKEAVELSDNVASFV
Caenorhabditis_gly-14	LEKIKVNDLPVDFSQINLDYIQKNEFESRLSDIR-NAVVDIDDITYPD
Arabidopsis_CGL1	LEPIKLNVDVTVDWKAKDLGYLTEGNYTK-YFSGLVQRARPIQGSIDLVLKA
	* **:: : : : : ** : : : : :
mouse_Mgat1	QK--ELGEVRVQYTSRDSFKAFKALGVMDLKSQVPRAGYRGIVTFQF
rat_Mgat1	RK--ELGEVRVQYTSRDSFKAFKALGVMDLKSQVPRAGYRGIVTFQF
human_MGAT1	RK--ELGEVRVQYTGSRDSFKAFKALGVMDLKSQVPRAGYRGIVTFQF
rabbit_MGAT1	RK--ELGEVRVQYTGSRDSFKAFKALGVMDLKSQVPRAGYRGIVTFQF
Xenopus_gntI	VP--GGRTVRVEYTTKDTFKAMARAFGVMDLKSQVARAAYKGVVSFSH
fly_Mgat1	IR--IEGPFVRIQYTTREQYKRTTKMLGLMDDFKSGVPTAYHGIVSFYY
Caenorhabditis_gly-13	LSSENKGSVRVMYDGNIDYIRKADKLHIMHDFKAGVPTAYDGIIVTCFI
Caenorhabditis_gly-14	WKPDYEGMKAIIVYTGRTDFVAKADRLSLMHDFKAGVPTAYNGIIVTCFY
Arabidopsis_CGL1	QN--IKDDVRIRYKQDQVEFERIAGEFGIFEEWKDGVPTAYKGVVVFRI
	: : * : : : : : : : * * * : * * * *
mouse_Mgat1	RGRRVHLAPPQT-WTGYDPSWN-----
rat_Mgat1	RGRRVHLAPPET-WNGYDPSWN-----
human_MGAT1	RGRRVHLAPPLT-WEGYDPSWN-----
rabbit_MGAT1	RGRRVHLAPPQT-WDGYDPSWT-----
Xenopus_gntI	RGRRVFLAPPKD-WTGYDPLWT-----
fly_Mgat1	NKRRVHLAPNAN-WKGYELSWN-----
Caenorhabditis_gly-13	NGIRIYLVPRDTKVSAYNPDSVPPSFGE
Caenorhabditis_gly-14	KGTRIFLVPRDSKVPGYDSSW-----
Arabidopsis_CGL1	QTTRRVFLVGPDSVMQLGIRNS-----